



DEPOSITION SYSTEMS FOR ORGANIC ELECTRONICS

PRODOS-200 Polymer Vapor Phase Deposition

AIXTRON

POLYMER VAPOR PHASE DEPOSITION

PRODOS-200

PRODOS-200

Process Module Overview

Innovative carrier gas enhanced CVD method to deposit polymer materials from the gas phase

For applications in the field of organic electronics and functional layers with following properties:

- ▶ Dielectric
- ▶ Conductive
- ▶ Hydrophobic
- ▶ Oleophobic
- ▶ etc.

Unique Advantages:

- ▶ Enabling high deposition rates and throughput
- ▶ High organic precursor utilization efficiency
- ▶ Excellent thickness uniformity and reproducibility
- ▶ Dry process avoiding the need for additional drying process and potential dissolving of previously deposited layers and structures



PRODOS-200 PVPD



PRODOS-200

PVPD System Specification

PVPD Process Module

Dual plenum Showerhead for separate injection of reactive process gases to the reaction chamber

Substrate Size 200 x 200 mm²

Substrate Type: Glass substrate or flexible substrate laminated to glass carrier

Customizable Precursor and gas mixing system:

- ▶ Gaseous Precursors
- ▶ Bubbler Source for liquid precursors
- ▶ Vaporizer for liquid precursors with low vapor pressure
- ▶ Trijet® for vaporization of liquid precursors with very low vapor pressure
- ▶ Evaporation Source for solid precursors
(e.g. di-para-xylylene for Parylen deposition)

Stage for insitu patterning by shadow mask

Active temperature control for substrate: integrated heating / cooling block

Optional Indexer for Segment Deposition and combinatorial optimization of process parameters

Optional modules for process activation: remote plasma or hot filament

Fully computer-controlled



OEC-200 Demo Cluster in AIXTRON's organic electronics laboratory

OEC-200

Cluster Integration Options

TRANSFER MODULE (TM)

TM-200

Automated transfer of substrates and masks

- ▶ LP (low pressure ~ 1 hPa) section for OVPD
- ▶ HV (high vacuum ~ 10^{-6} hPa) section for vacuum thermal evaporation (VTE) processes 4, 5 or 6 facets/ports for flexible configuration with process modules (PM) and utility modules (UM)

PA-200 Pre-Alignment (PA) Module

- ▶ Pre-aligns substrates for frame-less handling
- ▶ Rotates substrate 180° in passage configuration between adjacent TMs

TM-200 / 6 facets



TM-200 / 5 facets



TM-200 / 4 facets



OEC-200

Utility Modules

MASK MAGAZINE

MM-200

- ▶ Holds up to 10 masks
- ▶ LP or HV option
- ▶ Sliding door interface to fab space or GB



LOAD LOCK

LL-200

- ▶ LP or HV option
- ▶ Sliding door interface to fab space or GB
- ▶ Cassette for up to 10 substrates



FLIP CHAMBER

FC-200

- ▶ Flips substrate from facing up (OVPD) to facing down (VTE) and vice versa



AIXTRON

Global Presence



CHINA

AIXTRON China Ltd.

Phone +86 21 6445 3226

Fax +86 21 6445 3742

E-Mail chinainfo@aixtron.com

KOREA

AIXTRON Korea Co., Ltd.

Phone +82 31 783 2220

Fax +82 31 783 4497

E-Mail koreainfo@aixtron.com

UNITED KINGDOM

AIXTRON Ltd.

Phone +44 1223 519 444

Fax +44 1223 519 888

E-Mail info@aixtron.com

GERMANY

AIXTRON SE

Phone +49 2407 9030 0

Fax +49 2407 9030 40

E-Mail info@aixtron.com

SWEDEN

AIXTRON AB

Phone +46 46 286 8980

Fax +46 46 286 8989

E-Mail info@aixtron.com

USA

AIXTRON Inc.

Phone +1 408 747 7140

Fax +1 408 752 0173

E-Mail usinfo@aixtron.com

JAPAN

AIXTRON K.K.

Phone +81 3 5781 0931

Fax +81 3 5781 0940

E-Mail japaninfo@aixtron.com

TAIWAN

AIXTRON Taiwan Co., Ltd.

Phone +886 3 571 2678

Fax +886 3 571 2738

E-Mail taiwaninfo@aixtron.com



www.aixtron.com

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